



NIST Combinatorial Methods Center

NCMC-11 Agenda

Complex Interfaces: Library Design and Performance Measurements
April 30 – May 1, 2007 ♦ Bldg. 101 / Lecture Room B

Monday, April 30, 2007 ♦ Morning

8:00 AM ***Arrival and Continental Breakfast***

8:30 AM ***Welcome and Workshop Introduction***
Michael Fasolka, Director, NIST Combinatorial Methods Center

Emerging Area: Flexible Electronics

8:40 AM ***Invited Lecture***
Nicholas Colaneri, Flexible Display Center, Arizona State University
Principal Pilot Line Manufacturing Challenges and Solutions in Direct Fabrication of a-Si:H TFT Arrays on Flexible Substrates

9:30 AM ***Invited Lecture***
Teng Li, University of Maryland
The Inorganic/Organic Interfaces in Flexible Electronics: Insights from Mechanics Modeling

10:10 AM **Youngsuk Jung**, Polymers Division, NIST
The Effect of Interfacial Roughness on the Thin Film Morphology and Charge Transport of High Performance Polythiophenes

10:30 AM ***Coffee Break***

Harnessing Instabilities for Measurements

10:50 AM **Jun Young Chung**, NCMC, Polymers Division, NIST
Advances in Wrinkling Metrology: Use of Critical Strain

11:10 AM **Heqing Huang**, NCMC, Polymers Division, NIST
Fabrication of Switchable Wrinkled Patterns via Polymer Brushes

11:30 AM **Kirt Page**, NCMC, Polymers Division, NIST
Thermal Wrinkling of Confined Polymer Films

11:50 AM **Adam Nolte**, NCMC, Polymers Division, NIST
Wrinkling Instabilities for Probing the Young's Modulus of LbL-Assembled Multilayer Films

12:10 PM ***Lunch in the NIST Cafeteria***

Monday, April 30, 2007 ♦ Afternoon

Mechanics of Surfaces and Interfaces

- 1:30 PM *Invited Lecture*
Krystyn Van Vliet, Massachusetts Institute of Technology
Chemomechanical Mapping of Hydrated Polymer Surfaces and Interfaces: From Combinatorial Libraries to Living Biological Cells
- 2:20 PM *Invited Lecture*
David Dillard, Virginia Tech
Opportunities for Characterizing Mixed Mode Fracture of Adhesive Bonds
- 3:00 PM **Jae Hyun Kim**, Polymers Division, NIST
High-Throughput Screening Test for the Interfacial Integrity of the Epoxy/Silicon and Glass
- 3:20 PM **Refreshment Break**
- 3:40 PM *Invited Lecture*
Robert Cook, Ceramics Division, NIST
Nanoindentation Measurement of Mechanical Properties of Viscous-Elastic-Plastic Layered Structures
- 4:20 PM **Nabil Bassim**, Ceramics Division, NIST
Design and Measurement of High-k Dielectric Libraries Grown on Silicon for CMOS Applications
- 4:40 PM **Dylan Morris**, Ceramics Division, NIST
Fracture Toughness Estimation of Thin Brittle Films by Nanoindentation
- 5:00 PM *Special Topic Lecture*
Michael Smith, Symyx Technologies, Inc.
Data Management Challenges in High-Throughput Research
- 5:30 PM **Adjourn**
- 6:30 PM **Dinner at Bugaboo Creek Steakhouse**
(see Map in Workshop Binder; appetizer service begins at 6:30 PM)

Tuesday, May 1, 2007 ♦ Morning

8:15 AM Continental Breakfast

8:50 AM **Welcome Back**
Chris Stafford, NCMC, Polymers Division, NIST

Gradient Surfaces via Self-Assembly

9:00 AM *Invited Lecture*
Zhiquan Lin, Iowa State University
Evaporation Induced Self Assembly (EISA) of Ordered Structures from a Capillary-Held Solution

9:40 AM **Thuy Chastek**, Polymers Division, NIST
Preparation and Characterization of Patchy Particles

10:00 AM **Brian Berry**, Polymers Division, NIST
Annealing of Thin Polymer Films via Translational Thermal Gradients

10:20 AM **Alamgir Karim**, Polymers Division, NIST
Self-Assembly of Magnetic Nanoparticles at Liquid Interfaces

10:40 AM **Coffee Break**

11:00 AM **Kirsten Genson**, NCMC, Polymers Division, NIST
Micropatterned Self-Assembled Monolayer Gradient Libraries

11:20 AM **Kevin Yager**, Polymers Division, NIST
Tunable Surfaces for Directed Self-Assembly

11:40 AM **Derek Patton**, NCMC, Polymers Division, NIST
Statistical Copolymer Brush Gradients: Fabrication, Characterization, and Applications

12:00 PM **Kalman Migler**, Polymers Division, NIST
High Viscosity Multi-Sample Micro-Reometer

12:20 PM **Wrap Up**
Chris Stafford and Carol Laumeier, NCMC, Polymers Division, NIST

12:30 PM **Lunch in the NIST Cafeteria**

Tuesday, May 1, 2007 ♦ Afternoon

NCMC Tours and Demonstrations

1:45 PM **Lab Tours** – convene in the NCMC Labs, Building 224, Room B-204
(see Lab Tours Handout in Workshop Binder)

3:45 PM **Adjourn**

Please mark your calendars to join us at NCMC-12 on November 1-2, 2007!